

REMARKS

Status of the claims

Claims 1-17 are pending. Claims 1-13 and 17 are rejected. Claims 1, 4-6 and 8 are amended. Claims 7, 9-13 and 17 are canceled. No new matter is added. Claims 14-16 are allowable. Applicants respectfully request that the Examiner please consider the amendments and remarks presented herein prior to Applicants' canceling claims to allow claims 14-16 to pass to issuance.

Claim amendments

Claim 1 is amended to overcome a rejection under 35 U.S.C. §112, first paragraph, as further discussed *infra*. Generally, amended claim 1 recites a method for inhibiting growth of tumor cells comprising administering a compound encompassed by the structure in claim 1. Claim 4 is amended to recite that the compound of claim 1 induces apoptosis, DNA synthesis arrest, cell cycle arrest, or cellular differentiation in the cells comprising the tumor. Claim 5 is amended to correct grammar. Claim 6 is amended to remove Markush language. Claim 8 is amended to recite that the

tumor cells comprise the cancers identified in the claim. No new matter is added in these amendments.

The 35 U.S.C. §112, first paragraph rejection

Claim 1 stands rejected under 35 U.S.C. §112, first paragraph as containing subject matter which was not described in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention of record. Applicants respectfully traverse this rejection.

The Examiner states that the specification, while enabling a method of inducing apoptosis of a cell comprising administering an effective amount of a compound of the formula in claim 14, does not reasonably provide enablement for a method for the treatment of a cell proliferative disease. The Examiner further states that the specification does not enable any person skilled in the art to which it pertains or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

Applicants have canceled claims 7, 9-13 and 17. Applicants have amended claim 1 to recite a method of inhibiting growth of tumor cells in an individual by administering a

pharmacologically effective dose of a compound of claim 1 to the individual. The specification demonstrates the growth inhibitory properties *in vivo* of the tocotrienol 2,5,7,8-tetramethyl-2R-(4,8,12-trimethyl-3,7,11 E:Z tridecatrien) chroman -6-yloxy) acetic acid against breast cancer, prostate cancer and colon cancer (col. 46, ll. 19-45; col. 47, ll. 63 to col. 50, ll. 16). Additionally, the specification demonstrates the EC_{50} of many tocopherols required to inhibit growth of both solid and disseminated cancers *in vitro* and *in vivo* (col. 40, ll. 25 to col. 43, ll. 23).

The only overall difference between the tocotrienols claimed and the tocopherols disclosed in the instant invention is the ethylenic side chain, which encompasses the isoprenyl side chain of α -, γ - and δ -tocotrienols, at position R^5 on both. Given that the specification teaches that tocopherols and tocotrienols both inhibit growth of tumors in breast cancer, in prostate cancer and in colon cancer *in vivo*, it would be reasonable for one of ordinary skill in the art to predict that other tocotrienols would have tumor growth inhibitory capabilities against the other solid and disseminated cancers taught in the specification. Furthermore, it is well within the skill of one of ordinary skill in the art to determine the EC_{50} of the tocotrienols of the instant invention for any of the cancers disclosed

in the specification without undue burden or experimentation given the teachings for the related tocopherol compounds. It also is well within ordinary skill and is standard in the art to determine dose and a dosage regimen for administration of a therapeutic anticancer compound and to select an appropriate route of administration.

Additionally, in considering the state of the prior art, Applicants respectfully draw the Examiner's attention to U.S. Patent Nos. 6,417,223 and 6,645,998 which issued prior to or at the time of filing the instant application, respectively, and to which the instant patent application claims priority. These patents claim Applicants' tocotrienol compounds and method of using them to treat a cell proliferative disease where X and Y are oxygen and R⁵ is a C₇₋₁₆ olefinic group containing 3 to 5 ethylenic bonds. Applicants submit that prior art exists which teaches the efficacy of some tocotrienols against tumors at the least and, as discussed *supra*, provides sufficient predictability and guidance for one of ordinary skill in the art to practice the instant invention, as amended.

Thus, Applicants submit that the specification enables the method of inhibiting tumor growth recited in claims 1-6 and 8 as presented herein. Accordingly, Applicants respectfully request that

the rejections of claims 1-6 and 8 under 35 U.S.C. 112, first paragraph, be withdrawn.

This is intended to be a complete response to the Office Action mailed September 10, 2004. Applicants submit that claims 1-6, 8 and 14-16 are in condition for allowance and respectfully request that claims 1-6, 8 and 14-16 be passed to issuance. If any issues remain outstanding, the Examiner is respectfully requested to telephone the undersigned attorney of record for immediate resolution. Applicants believe no fees are due, however, should this be in error, please debit any applicable fees from Deposit Account No. 07-1185.

Respectfully submitted,

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